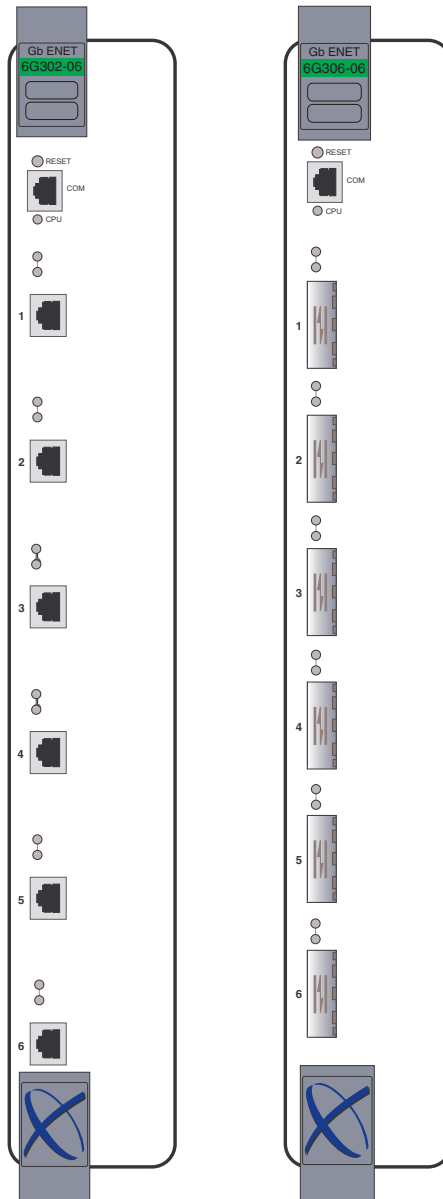


6G302-06 and 6G306-06

Gigabit Ethernet Installation Guide





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- 21 CFR 1040.10 and 1040.11 U.S. Department of Health and Human Services (FDA).
- IEC Publication 825 (International Electrotechnical Commission).
- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

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Removing the optical connector from the transceiver allows laser radiation to emit directly from the optical port. The maximum radiance from the optical port (under worst case conditions) is 0.8 W cm^{-2} or $8 \times 10^3 \text{ W m}^{-2} \text{ sr}^{-1}$.

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73/23/EEC

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Manufacturer's Address: **500 Spaulding Turnpike**
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Conformance to Directive(s)/Product Standards: **EC Directive 89/336/EEC**
EC Directive 73/23/EEC
EN 55022
EN 55024
EN 60950
EN 60825

Equipment Type/Environment: **Networking Equipment, for use in a Commercial**
or Light Industrial Environment.

Enterasys Networks, Inc. declares that the equipment packaged with this notice conforms to the above directives.

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About This Guide

Welcome to the **6G302-06 and 6G306-06 Gigabit Ethernet Installation Guide**. This guide describes the 6G302-06 and 6G306-06 modules and provides information concerning network requirements, installation, and troubleshooting. For information about how to use Local Management to configure and manage the modules, refer to the Enterasys Networks *Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide*.

Important Notice

Depending on the firmware version used in the 6G302-06 or 6G306-06, some features described in this document may not be supported. Refer to the Release Notes shipped with your module to determine which features are supported.

USING THIS GUIDE

Read through this guide to completely understand the module capabilities and how to install it.

A general working knowledge of Ethernet and IEEE 802.3 type data communications networks and their physical layer components is helpful when installing the modules.



NOTE: If the information in this document applies only to the 6G302-06 or 6G306-06, the module is referred to by its model name. If the information applies to both the 6G302-06 and 6G306-06, the term “module” is used.

This chapter provides preliminary information to aid in using this manual, lists technology and user guides that may help the user set up and manage the module, and gives instructions on how to get help from Enterasys Networks.

STRUCTURE OF THIS GUIDE

This guide is organized as follows:

Chapter 1, **Introduction**, provides an overview of the modules and their features.

Chapter 2, **Network Requirements**, outlines the network requirements that must be met before installing the module.

Chapter 3, **Installation**, provides instructions on how to install the module and connect segments to the module.

Chapter 4, **Troubleshooting**, describes the function of the LANVIEW LEDs, which can help to quickly diagnose network/operational problems.

Appendix A, **Specifications**, contains information on functionality and operating specifications, connector pinouts, environmental requirements, and physical properties.

Appendix B, **Mode Switch Bank Settings and Options**, describes how to set the Mode Switch, and install the optional FLASH module upgrade.

Appendix C, **GPIM Specifications**, lists the operating specifications and regulatory compliance for the GPIMs.

RELATED DOCUMENTS

The following Enterasys Networks documents may help to set up and manage the module:

- *Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide*
- *Matrix E7 Overview and Setup Guide*
- *6C105 SmartSwitch 6000 Overview and Setup Guide*
- *Ethernet Technology Guide*
- *Cabling Guide*
- *SmartTrunk User's Guide*

The manuals listed above can be obtained from the World Wide Web in Adobe Acrobat Portable Document Format (PDF) at the following site:

<http://www.enterasys.com/support/manuals/>



NOTE: All documentation for the SecureFast VLAN Manager software is contained on the VLAN Manager CD-ROM.

DOCUMENT CONVENTIONS

The guide uses the following conventions:



Note symbol. Calls the reader's attention to any item of information that may be of special importance.



Tip symbol. Conveys helpful hints concerning procedures or actions.



Caution symbol. Contains information essential to avoid damage to the equipment.



Electrical Hazard Warning symbol. Warns against an action that could result in personal injury or death due to an electrical hazard.



Warning symbol. Warns against an action that could result in personal injury or death.

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- A description of the failure
- A description of any action(s) already taken to resolve the problem (e.g., changing mode switches, rebooting the unit, etc.)
- The serial and revision numbers of all involved Enterasys Networks products in the network
- A description of your network environment (layout, cable type, etc.)
- Network load and frame size at the time of trouble (if known)
- The device history (i.e., have you returned the device before, is this a recurring problem, etc.)
- Any previous Return Material Authorization (RMA) numbers

Introduction

This chapter introduces the 6G302-06 and 6G306-06 Gigabit Ethernet modules. Unless otherwise noted, the information in this document applies to both modules.

Important Notice

Depending on the firmware version used in the 6G302-06 and 6G306-06, some features described in this document may not be supported. Refer to the Release Notes shipped with your module to determine which features are supported.

6G302-06

The 6G302-06 module ([Figure 1-1](#), View A) features six 1000BASE-T Gigabit Ethernet ports with RJ45 connectors. The RJ45 front panel ports only support full-duplex mode of operation.

6G306-06

The 6G306-06 module ([Figure 1-1](#), View B) features six Gigabit Ethernet ports. The module features six active switched Gigabit Ethernet ports, using hot-swappable GPIMs, to connect to the network. The fixed front panel ports only support full-duplex mode of operation.

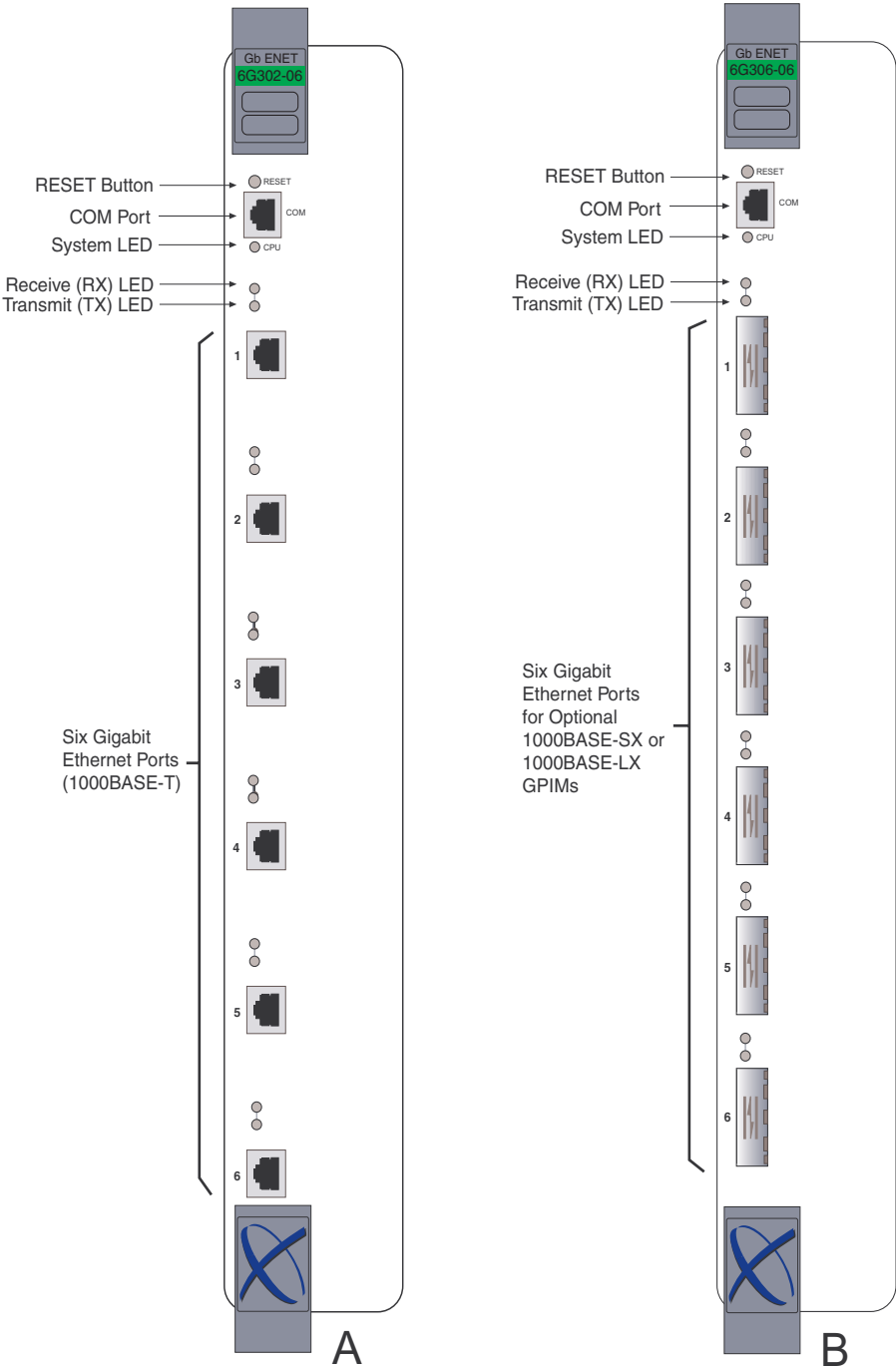
6G302-06 and 6G306-06

The modules support IEEE 802.1D switching (bridging) in the Matrix E7 chassis, and is backwards compatible with the 6C105 SmartSwitch 6000 chassis.

The module ports can be configured to control traffic in several ways, including prioritizing traffic flow according to protocol type. The modules can also be configured to establish Virtual Local Area Networks (VLANs) and control the flow of frames associated with each VLAN according to priority and Ether type. Detailed information about VLANs is provided in the local management user's guide.

The modules receive power and backplane connectivity when inserted into an Enterasys Networks' 6C107 Matrix E7 chassis or 6C105 SmartSwitch 6000 chassis.

Figure 1-1 6G302-06 and 6G306-06 Modules



1.1 CONNECTIVITY

6G302-06

The 6G302-06 connects to Gigabit Ethernet networks or workstations through its six RJ45 front panel port connectors. These ports are IEEE 802.3 1000BASE-T compliant, and support the connection of category 5 cables that are up to 100 meters long.

6G306-06

The 6G306-06 has six ports that support Gigabit Ethernet Port Interface Modules (GPIMs), which allow the user to make connections to Gigabit Ethernet networks. The GPIMs are hot swappable and any combination of GPIMs can be installed in the six module ports. Three available GPIMs: the GPIM-01, GPIM-08, and GPIM-09, provide connectivity to Gigabit Ethernet using fiber. The GPIM-01 is used for multimode fiber support, the GPIM-08 is used for single mode fiber, and the GPIM-09 is used for multimode or single mode fiber support. See the Release Notes for any changes to this information.



NOTE: The acronym “GPIM” stands for Gigabit (Ethernet) Port Interface Module. In this manual, GPIM is used to designate any type of GPIM, regardless of the style of connection. When referring to a specific GPIM, the name is used, e.g., GPIM-01.

The module supports the 1000BASE-SX and 1000BASE-LX specifications using fiber GPIMs. 1000BASE-SX is supported with the GPIM-01 providing one SC fiber optic connector for 50 or 62.5 micron multimode fiber optic cable. 1000BASE-LX is supported with the GPIM-09 providing one SC fiber optic connector for 50 or 62.5 micron multimode fiber optic cable, or 10 micron single mode fiber optic cable. The GPIM-08 meets or exceeds the 1000BASE-LX requirements using 10 micron single mode fiber optic cable. For more specifications on GPIMs, see [Appendix C](#).

1.1.1 Options

The GPIM options for the module are listed in [Table 1-1](#). See the firmware Release Notes for any changes or additions to this information.

Table 1-1 GPIM Options

Part Number	Description	Application
GPIM-01	SC fiber connector	Supports 50 or 62.5 micron multimode fiber.
GPIM-08	SC fiber connector	Supports 10 micron single mode fiber.
GPIM-09	SC fiber connector	Supports single mode (10 micron) or multimode (50 or 62.5 micron) fiber.

1.2 RUNTIME IP ADDRESS DISCOVERY

This feature enables the module to automatically accept an IP address from a Boot Strap Protocol (BootP) server on the network without requiring a user to enter an IP address through Local Management.

When the module is connected to the network and powered up, Runtime IP Address Discovery (RAD) checks the module for an IP address. If one has not yet been assigned (module IP address set to 0.0.0.0), RAD checks to see if any of the module interfaces have a link. If a link is discovered, RAD sends out Reverse Address Resolution Protocol (RARP) and BootP requests to obtain an IP address from a BootP server on the network.

The RAD requests start at an interval of one per second. The interval then doubles after every transmission until an interval of 300 seconds is reached. At this point, the interval remains at 300 seconds. The RAD requests continue until an IP address is received from a RARP or BootP server, or an IP address is entered using Local Management.



NOTE: The module will reboot after RAD is successful.

1.3 SMARTTRUNK

Traditional 802.1D Spanning Tree Bridges only allow one active data path between any two switches; all other parallel data paths are in Standby or Blocking mode. If one interface or path should fail, then the other interface automatically comes out of Blocking mode and forwards all of the traffic. This is fine for redundancy purposes. However, it is not the most efficient use of resources.

SmartTrunk, also referred to as SmartTrunking, is Enterasys Networks' terminology for load balancing or load sharing. SmartTrunk provides the ability to take full advantage of the network's redundant bandwidth. SmartTrunk divides network traffic across multiple ports in parallel to provide additional throughput. The SmartTrunk application can be used with any of the Enterasys Networks switch modules (except ATM modules).

For more information about SmartTrunk and how to configure the SmartSwitch, refer to the *SmartTrunk User's Guide*.

1.4 REMOTE MONITORING (RMON)

The module supports all nine Ethernet RMON groups. The Statistics, Alarms, Events and History groups are enabled on all ports by default.

Enterasys Networks' RMON Actions is a vendor-specific extension of RMON and provides the ability to set an "Action" on any SNMP MIB variable. The Action can be triggered by any RMON Event and/or Alarm. An example of an Action would be to turn off a MIB-2 interface if a broadcast threshold is crossed.

1.5 BROADCAST SUPPRESSION

Broadcast Suppression enables a user to set a desired limit of receive broadcast frames per port/per second to be forwarded out the other ports on the module. Any broadcast frames above this specified limit are dropped. In the event that broadcast frames are being suppressed, multicast and unicast frames continue to be switched.

1.6 PORT/VLAN REDIRECT FUNCTIONS

The port redirect function, also referred to as “Port Mirroring,” is a troubleshooting tool used to map traffic from a single source port to a single destination port within the module. This feature allows frames, including those with errors, to be copied and sent to an analyzer or RMON probe. The analyzer or RMON probe will see the data as if it were directly connected to the LAN segment of the source port.

The VLAN redirect function is similar to the port redirect function except that the frames received by the module are redirected to a designated destination port according to the VLAN classification of the frames received. Multiple VLANs can be directed to the same destination port. The VLAN redirect function is only supported when the module is operating as an 802.1Q switch.

1.7 TRAFFIC RATE LIMITING

The Traffic Rate Limiting feature allows the module to control traffic rates on a per-port, per-priority basis. The network administrator can configure a rate limit (from 100 kbps to 1 Gbps) for a given port with an associated list of IEEE 802.1p priorities (which can include one, some, or all of the eight priority levels defined in 802.1p). Each rate limit is specified as an inbound or an outbound limit. The combined rate of all traffic on the port that matches the listed priorities cannot exceed the programmed limit. If the rate exceeds the defined limit, frames are dropped until the rate falls below the limit.

Administrators can configure up to four rate limit rules per port; however, each rule must not include conflicting 802.1p priority values. In order to control inbound and outbound traffic on the same port, two rate limiting rules must be configured (one for inbound and one for outbound). Since the rate limiting operation occurs after the processing of the multi-layer classification rules, the two features can be combined to provide application-aware rate limiting.



NOTE: This Traffic Rate Limiting function is not supported on SmartTrunk configured ports.

For more information about the application of Traffic Rate Limiting, refer to the *Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide*.

1.8 FLOW CONTROL

Flow control is a method of managing the flow of frames between two devices. It ensures that a transmitting device does not overwhelm a receiving device with data. This is accomplished by the transmitting device pausing its transmission while the receiving device processes the frames already received.

The module supports frame based 802.3x flow control. Frame based 802.3x flow control is supported on all Ethernet ports operating in the full duplex mode. The Gigabit Ethernet standard requires all ports to utilize the full duplex mode of operation. Flow control can be enabled or disabled on a port-by-port basis.

1.9 GARP SWITCH OPERATION

Some or all ports on the switch may be activated to operate under the Generic Attribute Registration Protocol (GARP) applications, GARP VLAN Registration Protocol (GVRP) and/or GARP Multicast Registration Protocol (GMRP).

GARP is a protocol, or set of rules, that outlines a mechanism for propagating the port state and/or user information throughout a bridged LAN to keep track of users and VLANs on the network fabric. MAC bridges and end users alike can take part in the registration and de-registration of GARP attributes such as VLAN and multicast group membership. For more details on how GVRP and GMRP handle frames under GARP, and how to configure the switch ports to take advantage of this operation, refer to the *Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide*.

1.10 802.1 PORT PRIORITY

The 802.1 port priority is used to assign a default priority to the frames received without priority information in their tag header, map prioritized frames to the appropriate transmit queues, and prioritize frames according to protocol type. The 802.1 port priority is part of the IEEE 802.1D standard.

1.11 DISTRIBUTED CHASSIS MANAGEMENT

The management capability for the chassis and modules vary between the 6C107 and 6C105.

1.11.1 Matrix E7 (6C107) Chassis

Modules in the Matrix E7 chassis can be managed separately using individual IP addresses, as assigned to each module. Any modules in the Matrix E7 can be selected and managed, however, there are no overall system-wide settings available.



NOTE: The Matrix E7 chassis does not allow Distributed Chassis Management functionality as in the 6C105 chassis, when using the module. Refer to the *Matrix E7 Overview and Setup Guide*, the *Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide*, or the firmware release notes for more information.

1.11.2 SmartSwitch 6000 (6C105) Chassis

The 6C105 SmartSwitch 6000 chassis can be viewed as a single entity with a single IP address. Its systems management functions are distributed to all modules, including the chassis. The chassis can be managed using a single IP address, or the modules can be managed separately using individual IP addresses. When the IP address of the chassis is used, system-wide parameters are set from the chassis menu in Local Management, while the module parameters are set by selecting the specific module to be modified and changing the settings for that module.

1.12 MANAGEMENT

Management of the module can be either in-band or out-of-band. In-band remote management is possible through any SNMP compliant Network Management Software, such as Enterasys Networks' WebView and Aprisma's SPECTRUM for Open Systems suite of management products. Out-of-band Local Management is provided through the RJ45 COM port on the front panel using a VT100 terminal or a VT100 terminal emulator.

Local Management, described in a separate document, provides the ability to manage the module. Refer to the *Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide*.

1.13 SWITCHING OPTIONS

In the 802.1Q mode (the default mode of operation), the module functions as an 802.1D switch until VLANs are configured.

The module provides 802.1Q switching or SecureFast Switching (SFS) Virtual Network Services between all of the GPIM interfaces when the module is installed in a 6C105 SmartSwitch 6000 chassis. IEEE 802.1Q switching and SecureFast switching allow migration to Virtual Network technologies without requiring the replacement of existing equipment.

When the module is installed in a 6C105 SmartSwitch 6000 chassis, SFS functionality is available for the module. SFS functionality is not available in the Matrix E7 chassis.

1.14 STANDARDS COMPATIBILITY

The module is fully compliant with the IEEE 802.3z, 802.3X, 802.1D, and 802.1Q standards. The module provides IEEE 802.1D Spanning Tree Algorithm (STA) support to enhance the overall reliability of the network and protect against “loop” conditions. The module supports a wide variety of industry standard MIBs including RFC 1213 (MIB II), RFC 1757 (RMON), RFC 1493 (Bridge MIB), RFC 1354 (FIB MIB), and RFC 1190 (Path MTU Discovery). A full suite of Enterasys Networks’ Enterprise MIBs provide a wide array of statistical information to enhance troubleshooting. For information on how to extract and compile individual MIBs, contact Enterasys Networks.

1.15 LANVIEW DIAGNOSTIC LEDs

LANVIEW diagnostic LEDs serve as an important troubleshooting aid by providing an easy way to observe the status of individual ports and overall network operations.

Network Requirements

Before installing the module, review the requirements and specifications referred to in this chapter concerning the following:

- SmartTrunk ([Section 2.1](#))
- 1000BASE-T ([Section 2.2](#))
- 1000BASE-SX/LX ([Section 2.3](#))

The network installation must meet the requirements to ensure satisfactory performance of this equipment. Failure to do so will produce poor network performance.



NOTE: The *Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide* referred to in the following sections can be found on the Enterasys Networks World Wide Web site: www.enterasys.com

2.1 SMARTTRUNK FEATURE

Before connecting the module to a network so it can take advantage of the SmartTrunk feature, there are certain rules concerning port connections and configurations that must be followed for proper operation. Refer to the *Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide* for additional information.

2.2 1000BASE-T NETWORK (FIXED FRONT PANEL PORTS)

The fixed front panel ports on the 6G302-06 module provide copper wire connections that can operate at 1000 Mbps (1 Gbps) and are 1000BASE-T compliant. The device at the other end of the copper connection must also meet the 1000BASE-T Gigabit Ethernet requirements for the devices to operate at Gigabit speed.

2.3 1000BASE-SX/LX NETWORK

The removable GPIMs for the 6G306-06 provide a Gigabit Ethernet connection that, when using the GPIM-01, GPIM-08, and GPIM-09, support fiber connections operating at 1000 Mbps (1 Gbps). Other GPIMs may support different types of cabling connections. The device at the other end of the fiber connection must meet IEEE 802.3z Gigabit Ethernet requirements for the devices to operate at Gigabit speed. When connecting a 1000BASE-SX/LX segment to any of the module ports (1 through 6), as installed, ensure that the network meets the Ethernet network requirements of the IEEE 802.3z standard for 1000BASE-SX/LX. See [Appendix C](#) for further details on the GPIMs.



WARNING: Only qualified personnel should install the 6G302-06 or 6G306-06.



NOTE: Read the Release Notes shipped with the module to check for any exceptions to the supported features and operation documented in this guide.

Unless otherwise noted, the following instructions apply to both the 6G302-06 and 6G306-06.

This chapter provides the instructions to install the 6G302-06 and 6G306-06. A Phillips screwdriver is required to install options into the module. Follow the order of the sections listed below to correctly install the module.

- Unpacking the Module ([Section 3.1](#))
- Installing Options into the 6G306-06 ([Section 3.2](#))
- Installing the Module into the Matrix E7 Chassis ([Section 3.3](#))
- Installing the Module into the SmartSwitch 6000 (6C105) Chassis ([Section 3.4](#))
- Connecting the 6G302-06 to the Network ([Section 3.5](#))
- Connecting the 6G306-06 to the Network ([Section 3.6](#))
- Completing the Installation ([Section 3.7](#))

3.1 UNPACKING THE MODULE

Unpack the module as follows:

1. Open the box and remove the packing material protecting the module.
2. Verify the contents of the carton as listed in [Table 3-1](#).

Table 3-1 Contents of the Module Carton

Item	Quantity
6G302-06 or 6G306-06	1
Antistatic Wrist Strap	1
Manual Accessory Kit	1

3. Remove the tape seal on the non-conductive bag to remove the module.
4. Perform a visual inspection of the module for any signs of physical damage. Contact Enterasys Networks if there are any signs of damage. Refer to [“Getting Help”](#) for details.

3.2 INSTALLING OPTIONS INTO THE 6G306-06

You may install any optional GPIM into the 6G306-06 before proceeding to [Section 3.3](#). GPIMs may be installed before or after the module is installed into the chassis, as they are hot-swappable. If you install the module before installing GPIMs, return to this section to install GPIMs in the module, as improper installation can result in damage to either the GPIM or the module.



NOTE: If you are installing a 6G302-06, proceed to [Section 3.3](#). Otherwise, proceed to [Section 3.2](#) for instructions on installing various options into the 6G306-06.



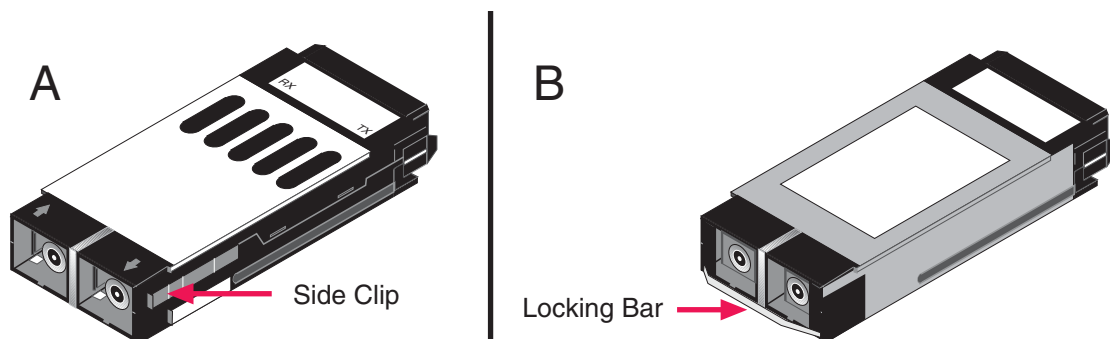
NOTE: If the module is to be installed with an optional FLASH upgrade, refer to [Appendix B](#) before installing the module into the chassis.

There are two different physical styles of GPIMs that can be installed into the module, as seen in [Figure 3-1](#). One style has the squeeze latch side clips ([Figure 3-1](#), View A), with the procedure in [Section 3.2.1](#). The other style is the locking bar ([Figure 3-1](#), View B), with the procedure in [Section 3.2.2](#).



CAUTION: The GPIM and the module are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the GPIM or module. Always leave the GPIM in the antistatic bag in which it was shipped or an equivalent antistatic container until ready to install it.

Figure 3-1 Different Physical Style of GPIMs



After installing a GPIM, refer to [Section 3.6.1](#) for details on connecting the GPIM to the network.

3.2.1 Side Clip GPIMs

This section applies only to side clip GPIMs. Damage can result to the GPIM and module if the directions in this section are not followed carefully.

Refer to [Appendix C](#) for cable specifications for the GPIMs.



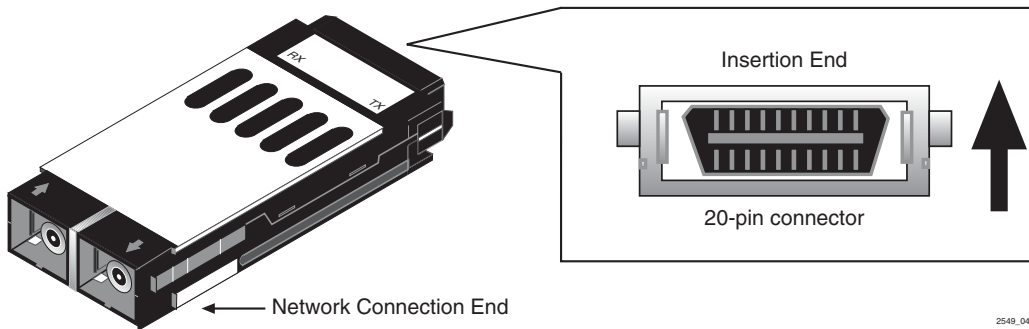
CAUTION: The GPIM and the module are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the GPIM or module. Always leave the GPIM in the antistatic bag in which it was shipped or an equivalent antistatic container until ready to install it.

3.2.1.1 Installing the Side Clip GPIM

The GPIMs are installed into the module as follows:

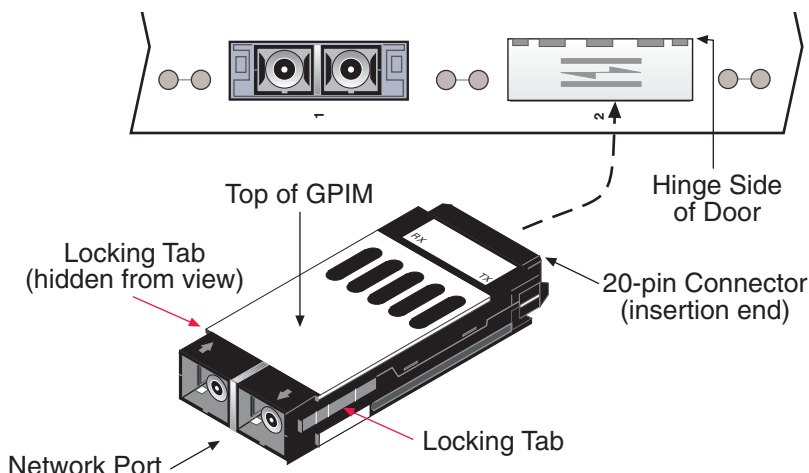
1. Attach the antistatic strap (refer to the instructions in the antistatic wrist strap package) before removing the GPIM from the antistatic packaging.
2. Remove the GPIM from the packaging.
3. Hold the GPIM with the network connection port facing away from the module. The 20-pin connector should be facing towards the empty GPIM slot, with the wide part of the connector oriented up in relation to the printing on the module. See [Figure 3-2](#) to orient the GPIM 20-pin connector.

Figure 3-2 GPIM Connectors



2549_04

4. Gently insert the GPIM (20-pin connector side) through the GPIM opening of the module. See [Figure 3-3](#). The top of the GPIM must be next to the hinge side of the GPIM slot door of the module, as shown in [Figure 3-3](#). The door folds up and the slides engage the sides of the GPIM. If the GPIM does not go in easily, do not force the device. Check the orientation against [Figure 3-2](#). Push the GPIM back until the 20-pin port engages the GPIM. The latch mechanism engages when the GPIM connector seats properly in the port.

Figure 3-3 Installing a Side Clip GPIM into the Module

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3.2.1.2 Removing the Side Clip GPIM



CAUTION: Do NOT remove a GPIM from a slot without unlocking the tabs. This can damage the GPIM.

The GPIM and the module are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the GPIM or module. Always leave the GPIM in the antistatic bag or an equivalent antistatic container when not installed.

Remove a GPIM from its slot in a module as follows:

1. Attach the antistatic wrist strap (refer to the instructions in the antistatic wrist strap package) before removing the GPIM.
2. Remove any cables connected to the GPIM.
3. Locate the locking tabs that are on the side of the GPIM. See [Figure 3-3](#).
4. Squeeze both locking tabs in towards the center of the GPIM. This will unlock the GPIM clips.
5. Grasp the sides of the GPIM while squeezing the tabs and pull it out of the port.
6. If storing or shipping the GPIM, insert the dust protector into the GPIM to protect the fiber ports.

3.2.2 Locking Bar GPIMs

This section describes how to install and remove GPIMs that are equipped with a metal locking bar.

Refer to [Appendix C](#) for cable specifications for the GPIMs.



CAUTION: This section applies only to GPIMs equipped with a metal locking bar. Damage can result to the GPIM and module if the directions in this manual are not followed carefully.

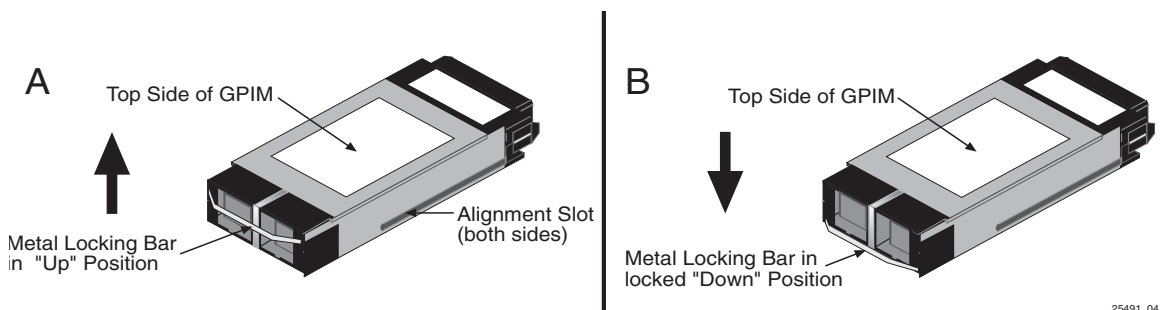
The GPIM and the module are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the GPIM or module. Always leave the GPIM in the antistatic bag or an equivalent antistatic container when not installed.

3.2.2.1 Installing the Locking Bar GPIM

Install the GPIM into the module as follows:

1. Attach the antistatic wrist strap (refer to the instructions in the antistatic wrist strap package) before removing the GPIM from the antistatic packaging.
2. Remove the GPIM from the packaging.
3. If there is a protective dust cover on the port, remove it from the GPIM.
4. Hold the GPIM with the top of the body facing up, as shown in [Figure 3-4](#).

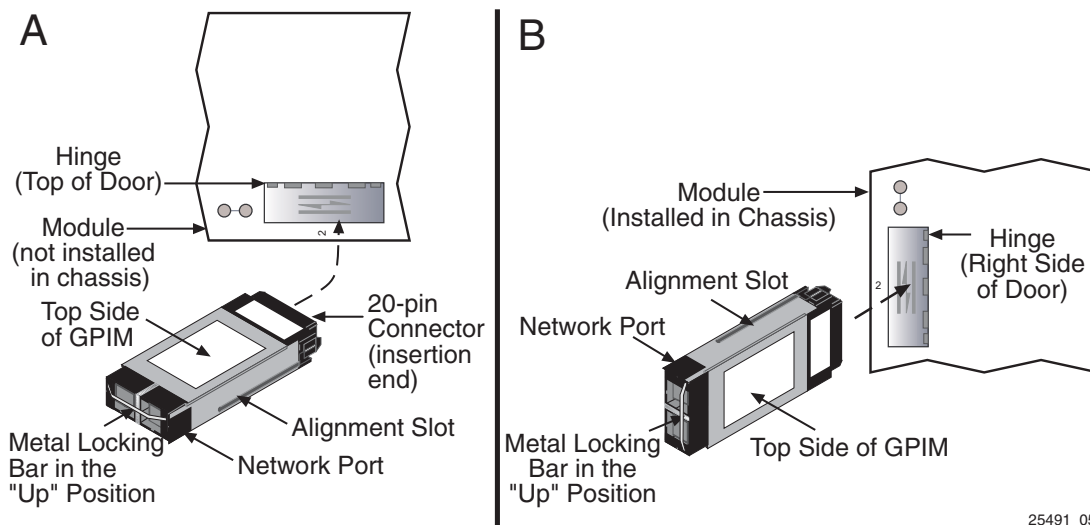
Figure 3-4 GPIM Metal Locking Bar Positions



5. Lift the GPIM metal locking bar upwards as far as it can go. Refer to [Figure 3-4](#), View A.
6. Hold the GPIM with the network port facing away from the module. The 20-pin connector should be facing towards the empty GPIM slot. See [Figure 3-2](#) to orient the GPIM.

7. The alignment slots on the GPIM must line up with the alignment guides inside the GPIM slot. The top of the GPIM must be next to the hinge side of the GPIM slot door of the module, as shown in [Figure 3-5](#).
8. Gently insert the GPIM (20-pin connector side) into the GPIM slot opening of the module. See [Figure 3-5](#). The door folds in and the slides engage the slots on the sides of the GPIM. If the GPIM does not go in easily, do not force the device. If it is not oriented correctly, it will stop about one quarter of the way into the slot, and should not be forced any further. Check the orientation against [Figure 3-4](#) and [Figure 3-5](#). Remove and reorient the GPIM so that it slides easily into the slot.
9. Push the GPIM back until the 20-pin port engages the GPIM connector.
10. Once the GPIM connector has been firmly seated into the module, push down on the GPIM metal locking bar until it clicks into place. See [Figure 3-4](#), View B. Do NOT force the locking bar into the locked position. If there is significant resistance while attempting to close the locking bar, remove the GPIM. Inspect it for any problems with the connectors. If there are any problems, contact Enterasys Networks for technical support (refer to “[Getting Help](#)” in [About This Guide](#)). If there are no problems, re-insert the GPIM carefully, and firmly seat the GPIM in the connector of the module.

Figure 3-5 Installing a Locking Bar GPIM
(View A: Uninstalled module, View B: Installed Module)



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3.2.2.2 Removing the Locking Bar GPIM



CAUTION: Do NOT remove a GPIM from a slot without unlocking the metal locking bar. This can damage the GPIM.

The GPIM and the module are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the GPIM or module. Always leave the GPIM in the antistatic bag or an equivalent antistatic container when not installed.

Remove a GPIM from its slot in a module as follows:

1. Attach the antistatic wrist strap (refer to the instructions in the antistatic wrist strap package) before removing the GPIM.
2. Remove any cables or dust protectors connected to the GPIM.
3. Locate the metal locking bar that is on the front of the GPIM.
4. Lift the metal locking bar upwards as far as it will go. See [Figure 3-4](#), View A. This will unlock the GPIM clips.
5. Holding the metal locking bar in the upwards position, grasp the sides of the GPIM and pull it out of the module.
6. If storing or shipping the GPIM, insert the dust protector into the GPIM to protect the fiber ports.

3.3 INSTALLING MODULES INTO THE MATRIX E7 CHASSIS



CAUTION: Failure to observe static safety precautions could cause damage to the module. Follow static safety handling rules and wear the antistatic wrist strap provided with the Matrix E7 chassis.

Do not cut the non-conductive bag to remove the module. Sharp objects contacting the board or components can cause damage.



NOTE: GPIM options may be installed before or after the module is installed into the chassis.

The DCM (Distributed Chassis Management) and SecureFast Switching functionality of the SmartSwitch 6000 is not supported when the modules are installed in a Matrix E7 chassis. Refer to the module release notes for specific information on supported functionality.

The 6G306-06 is typically installed as a high-speed uplink module. As such, it should not be used as the proxy bridge from slots 1-5 to slots 6-7 for the generation 1 and 2 modules (6x1xx and 6x2xx models). Also, for the Matrix E7 to operate optimally, the Matrix E7 should not be filled with all 6G306-06 modules. See the *Matrix E7 Overview and Setup Guide* for more information.

To install a module, refer to [Figure 3-6](#) and proceed as follows:



NOTE: Although the 6G306-06 is shown in [Figure 3-6](#), this procedure applies to both the 6G302-06 and 6G306-06 modules.

1. Remove the blank panel covering the slot in which the module will be installed. All other slots must remain covered to ensure proper airflow and cooling. (Save the blank plate in the event you need to remove the module.)
2. Carefully remove the module from the shipping box. (Save the box and packing materials in the event the module must be reshipped.)
3. Locate the antistatic wrist strap shipped with the module. Attach the antistatic wrist strap to your wrist and plug the cable from the antistatic wrist strap into the ESD grounding receptacle at the upper right corner of the 6C105.
4. Remove the module from the plastic bag. (Save the bag in the event the module must be reshipped.) Observe all precautions to prevent damage from Electrostatic Discharge (ESD).
5. Examine the module for damage. If any damage exists, DO NOT install the module. Immediately contact Enterasys Networks. Refer to [“Getting Help”](#), in **About This Guide**.

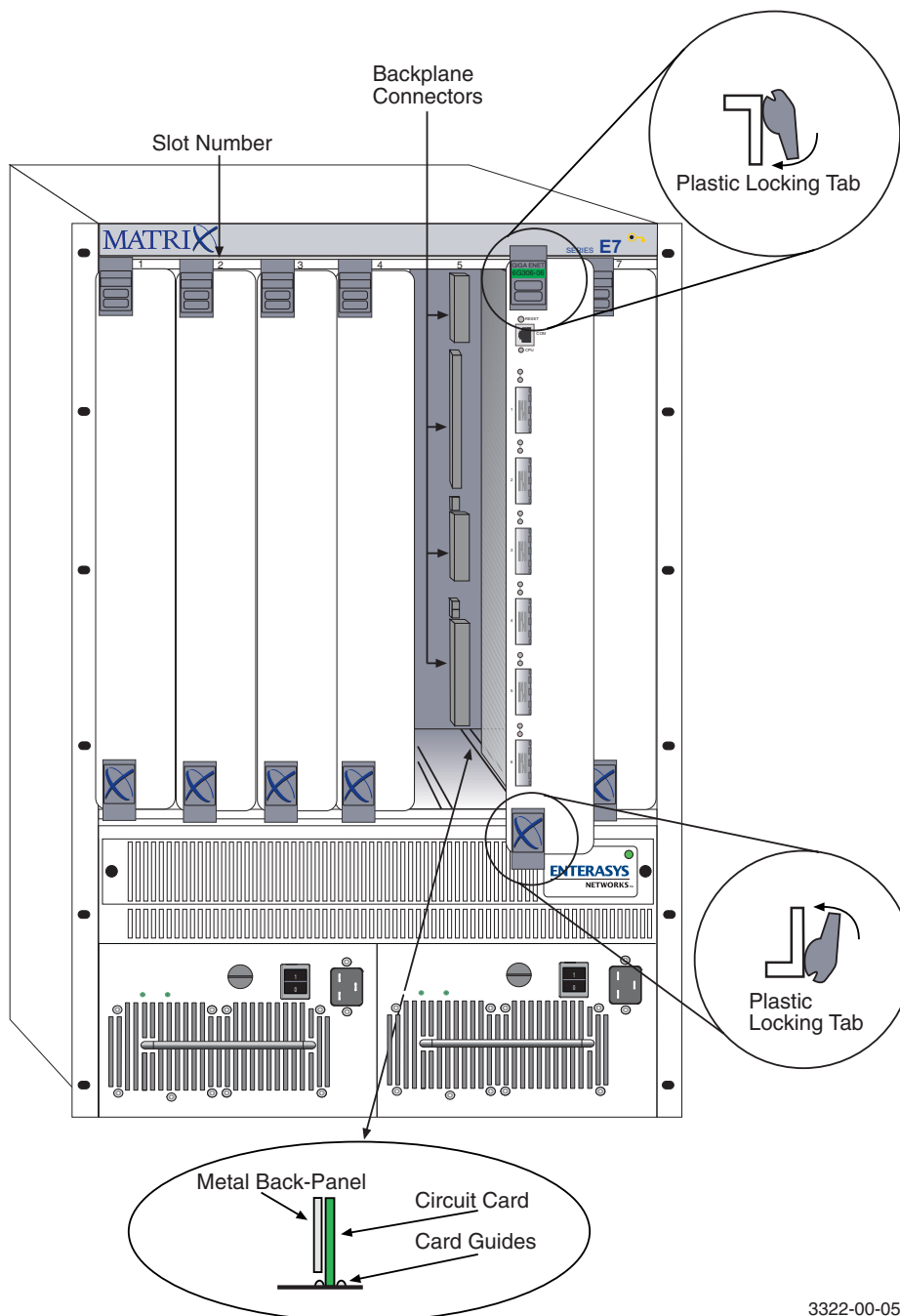


CAUTION: To prevent damaging the backplane connectors in the following step, take care that the module slides in straight and properly engages the backplane connectors.

Ensure that the top plastic locking tab lines up with the desired slot number located on the front panel of the chassis. Refer to [Figure 3-6](#).

6. Locate the slot guides that line up with the number of the slot in which the module will be installed. Install the module in the chassis by aligning the module circuit card between the upper and lower metal rail guides of the desired slot, sliding it into the chassis, and locking down the top and bottom plastic locking tabs, as shown in [Figure 3-6](#). Take care that the module slides in straight and properly engages the backplane connectors.
7. If the chassis in which the module is installed was powered down for the installation, turn it back on. Check to see that the CPU LED settles at solid green after a few minutes. If the LED does not turn solid green, see [Chapter 4](#) for details.

Figure 3-6 Installing the Module in the Matrix E7 Chassis



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3.4 INSTALLING THE MODULE INTO THE 6C105 CHASSIS



CAUTION: Failure to observe static safety precautions could cause damage to the module. Follow static safety handling rules and wear the antistatic wrist strap provided with the 6C105 chassis.

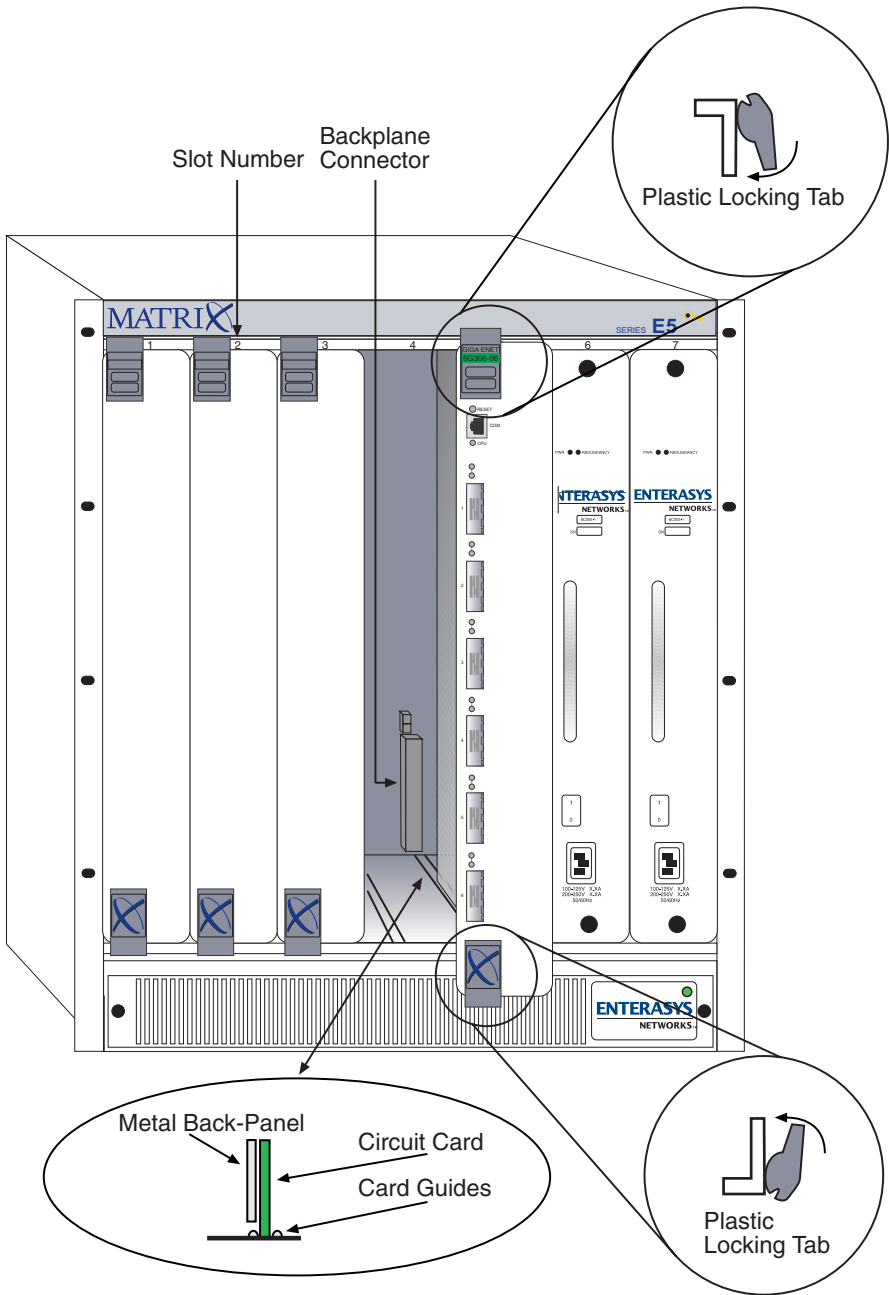
Do not cut the non-conductive bag to remove the module. Sharp objects contacting the board or components can cause damage.

Certain restrictions may apply when installing the module into the 6C105 chassis. Refer to the Release Notes for any updated information concerning installing the module into the 6C105 chassis. Otherwise, the installation procedure from [Section 3.3](#) can be followed, with the exception of the fact that the 6C105 chassis has only 5 slots as opposed to the 7 slots in the Matrix E7. The module can be installed in any of the slots that are available. To install a module, refer to [Figure 3-7](#) and proceed as in [Section 3.3](#).



NOTE: The DCM (Distributed Chassis Management) and SecureFast Switching functionality of the SmartSwitch 6000 is supported when the modules are installed in a 6C105 SmartSwitch 6000 chassis. Refer to the module release notes for specific information on supported functionality.

Figure 3-7 Installing the Module in the 6C105 Chassis



3322-00-06

3.5 CONNECTING THE 6G302-06 TO THE NETWORK

This section describes how to connect unshielded twisted pair (UTP) segments from the network or other devices to the 6G302-06 ([Section 3.5.1](#)).



NOTE: If the module is being installed in a network using Port Trunking, there are rules concerning the network cable and port configurations that must be followed for Port Trunking to operate properly. Before connecting the cables, refer to the *Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide* for the configuration information.

For details on how to get manuals, refer to the “[Related Documents](#)” section in [About This Guide](#).

3.5.1 Connecting UTP Cables to the 6G302-06

The fixed front panel ports of the 6G302-06 are 1000BASE-T RJ45 ports with internal crossovers. When connecting a workstation to these ports, use a straight-through cable. When connecting networking devices to these ports, such as a bridge, repeater, or router, use a crossover cable.

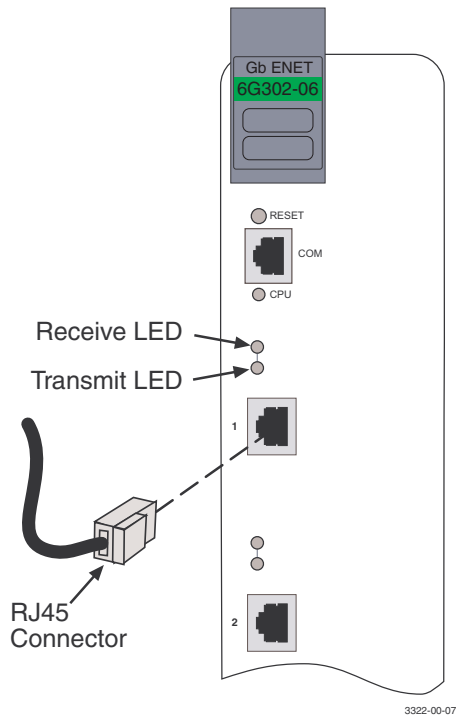


NOTE: All RJ45 front panel ports on the 6G302-06 support Category 5 Unshielded Twisted Pair (UTP) cabling with an impedance between 85 and 111 ohms.

Connect a twisted pair segment to the 6G302-06 as follows:

1. Ensure that the device connected to the other end of the segment is powered ON.
2. Connect the twisted pair segment to the 6G302-06 by inserting the RJ45 connector on the twisted pair segment into the desired RJ45 port as shown in [Figure 3-8](#).

Figure 3-8 Connecting a Twisted Pair Segment to the 6G302-06



3. Verify that a link exists by checking that the port **RX** (Receive) LED is ON (flashing amber, blinking green, or solid green). If the **RX** LED is OFF and the **TX** (Transmit) LED is not blinking amber, perform the following steps until it is on:
 - a. Verify that the cabling being used is Category 5 UTP with an impedance between 85 and 111 ohms. If the port is to operate at 1000 Mbps, category 5 cabling must be used.
 - b. Verify that the device at the other end of the twisted pair segment is on and properly connected to the segment.
 - c. Verify that the RJ45 connectors on the twisted pair segment have the proper pinouts and check the cable for continuity. Typically, a crossover cable is used between hub devices. A straight-through cable is used to connect between switches or hub devices and an end user (computer). Refer to [Figure 3-9](#) and [Figure 3-10](#) for four-wire RJ45 connections. Refer to [Figure 3-11](#) and [Figure 3-12](#) for eight-wire RJ45 connections.
 - d. If a link is not established, contact Enterasys Networks. Refer to [“Getting Help”](#) in [About This Guide](#) for details.
4. Repeat all the steps above until all connections have been made.

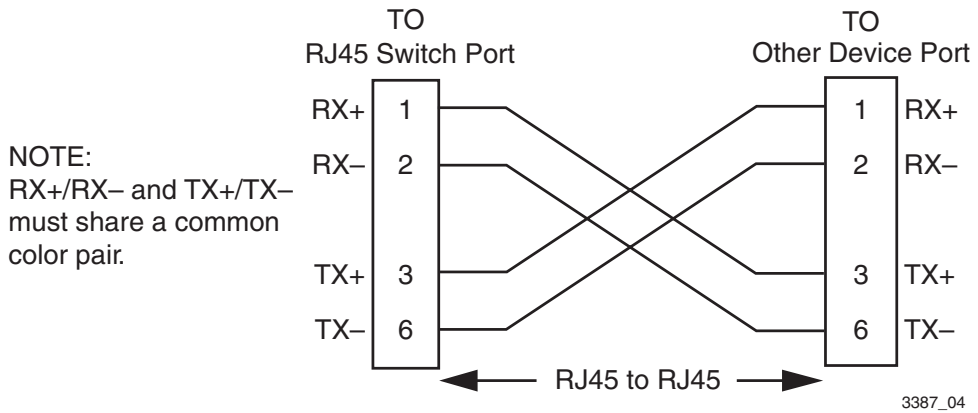
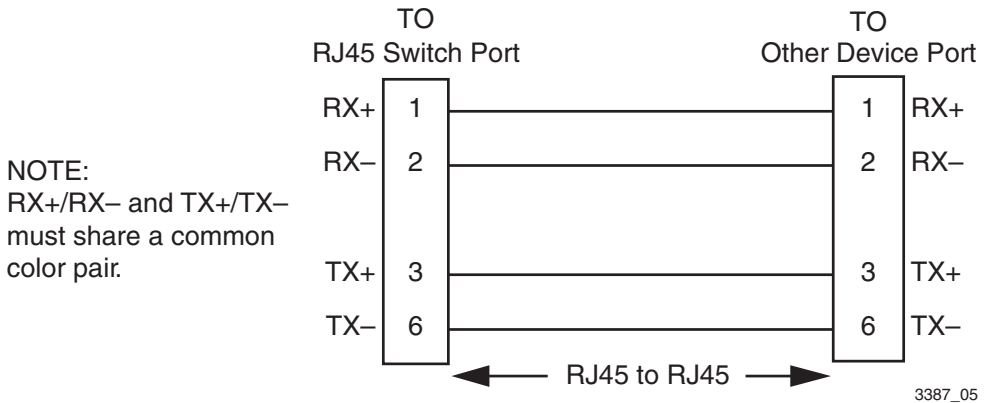
Figure 3-9 Four-Wire Crossover Cable RJ45 Pinouts for 10/100BASE-T**Figure 3-10 Four-Wire Straight-Through Cable RJ45 Pinouts for 10/100BASE-T**

Figure 3-11 Eight-Wire Crossover Cable RJ45 Pinouts for 10/100/1000BASE-T

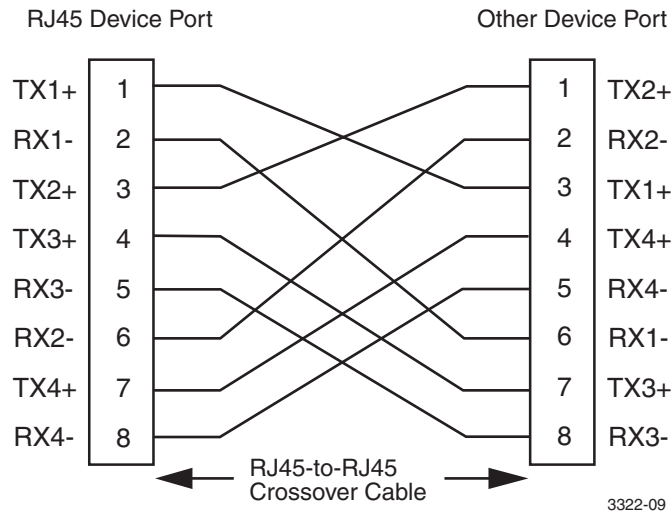
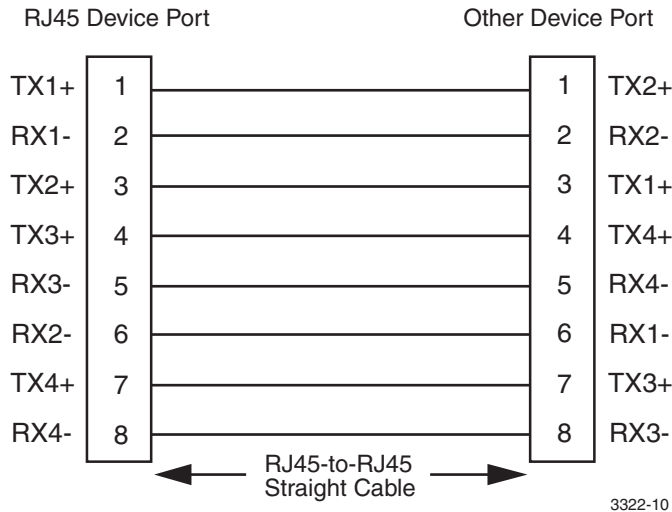


Figure 3-12 Eight-Wire Straight-Through Cable RJ45 Pinouts for 10/100/1000BASE-T



3.6 CONNECTING THE 6G306-06 TO THE NETWORK

The following sections describe how to make the fiber optic cable connections.

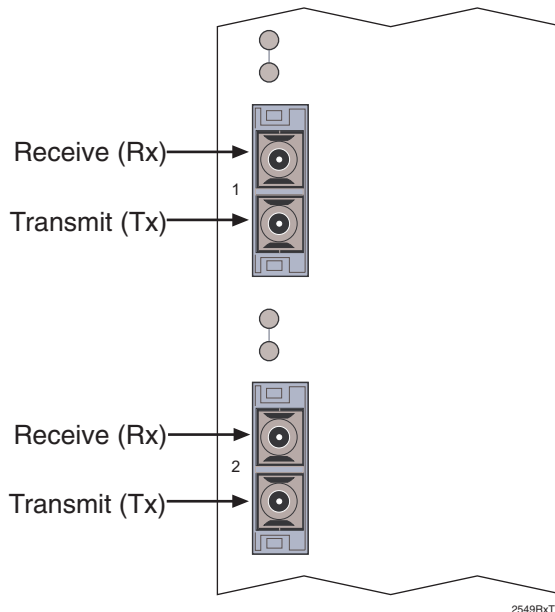
3.6.1 SC Fiber Connections to the Network

The GPIM-01, GPIM-08, and GPIM-09 each have an SC style connector for the network port that is used to connect to the Gigabit Ethernet network. Enterasys Networks offers fiber optic cables that use SC style connectors, which are keyed to ensure proper crossover of the transmit and receive fibers.



NOTE: An odd number of crossovers (preferably one) must be maintained between like devices so that the transmit port of one device is connected to the receive port of the other device and vice versa.

Figure 3-13 Module Fiber Port Designations



Different size and wavelength fiber cable is used for different applications. The GPIM-08 and the GPIM-09 typically have a blue connector to indicate the long wave length transceiver. The GPIM-01 connector is typically black or beige, to indicate short wave length applications. Check the fiber specifications in [Appendix C](#) for each GPIM carefully before connecting a GPIM to the network.

Since the GPIM-01, GPIM-08, and GPIM-09 all have the SC fiber connector, the directions for connectivity are the same, except for when the GPIM-09 is connected to multimode fiber. Refer to [Section 3.6.2](#) before connecting the GPIM-09 to multimode fiber.

3.6.2 GPIM-09 Connection Using Multimode Cable

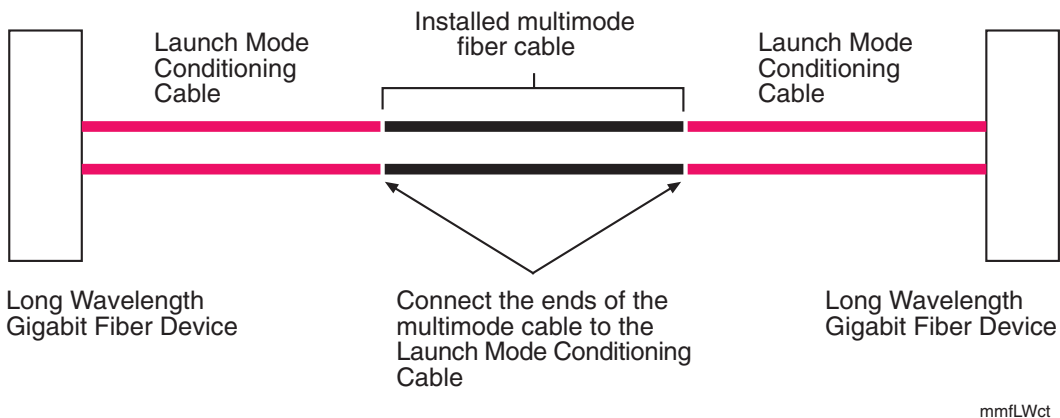


NOTE: When using multimode fiber cable for the GPIM-09 (long wave length transceiver), connect the Launch Mode Conditioning cable as detailed in the following procedure ([Section 3.6.2](#)). The following procedure is not needed when connecting single mode fiber cable to the GPIM-09. Launch Mode Conditioning cables are available from Enterasys Networks.

To connect the GPIM-09 to the network using multimode fiber, perform the following steps:

1. Connect Launch Mode Conditioning cable to the multimode fiber on both ends of the multimode cable, before connecting the SmartSwitch with a GPIM-09 to the multimode fiber cabling. See [Figure 3-14](#).

Figure 3-14 GPIM-09 Launch Mode Conditioning Cable Connection



2. Once the Launch Mode Conditioning cable is connected to the ends of the multimode fiber cable, proceed to [Section 3.6.3](#) to complete the installation to the GPIM-09 device.

3.6.3 6G306-06 Network Connection

To connect the module using fiber cable to the network, perform the following steps:



NOTE: If connecting the module with a GPIM-09 to the network using multimode fiber cable, refer to [Section 3.6.2](#) before following this procedure.

1. Remove any protective covers from the fiber optic ports and from the ends of the connectors.



WARNING: The GPIM-08 and GPIM-09 use Class 1 lasers. Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.



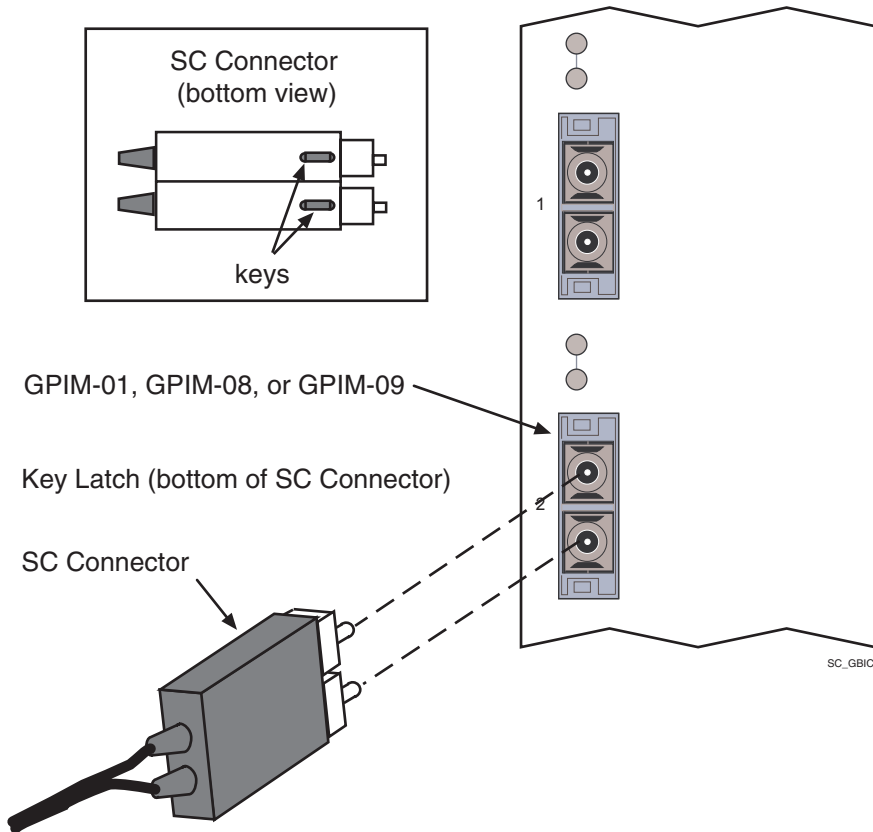
NOTE: Leave the protective covers in place when the connectors or ports are not in use to prevent contamination.

Do not touch the ends of the fiber optic strands, and do not let the ends come in contact with dust, dirt, or other contaminants. Contamination of the ends causes problems in data transmission.

If the ends become contaminated, blow the surfaces clean with a canned duster. A fiber port cleaning swab saturated with optical-grade isopropyl alcohol may also be used to clean the ends.

2. Insert one end of the SC connector, key side down, from the GPIM-01, GPIM-08, or GPIM-09 into the module. See [Figure 3-15](#). Ensure that the appropriate cable is used for the application of the GPIM. Refer to [Appendix C](#) for the appropriate GPIM for the fiber cable used for the installation.

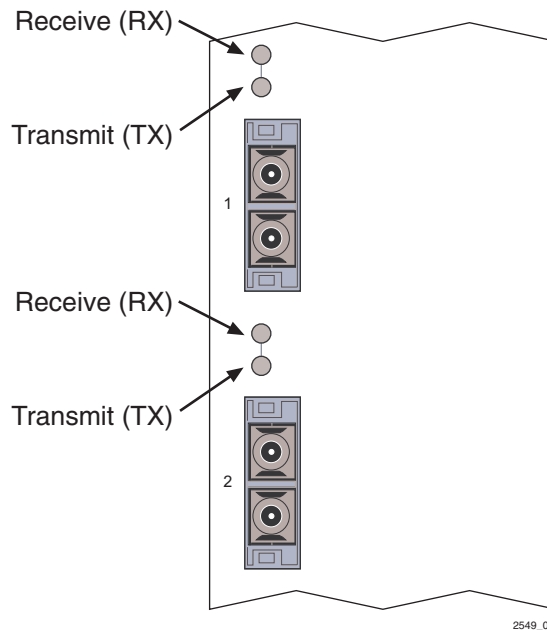
Figure 3-15 Fiber GPIM Connections



3. At the other end of the fiber optic cable, attach the SC connector to the other device. Verify that a link exists by checking that the port **Receive** LED is ON (flashing amber, blinking green, or solid green). See [Figure 3-16](#) for LED locations. If the **Receive** LED is OFF and the **Transmit** LED is not blinking amber, perform the following steps until it is ON:
 - a. Check that the device at the other end of the link has power turned on and is Gigabit Ethernet compatible.
 - b. Verify proper crossover of fiber strands between the port on the module and the fiber optic device at the other end of the fiber optic link segment.
 - c. Verify that the fiber cable meets the specifications outlined in [Appendix C](#) for the installed GPIM.

To remove the SC connector from the GPIM, carefully pull the connector out of the port. It may need to be moved from side-to-side gently to release the latching keys.

Figure 3-16 Module Fiber Port LEDs



If a link has not been established, refer to [Chapter 4](#) for LED troubleshooting details. If a problem persists, refer to [“Getting Help”](#) in **About This Guide** for details on contacting Enterasys Networks.

3.7 COMPLETING THE INSTALLATION

After installing the module and making the connections to the network, proceed as follows:

1. If the chassis is installed in a rack that has strain-relief brackets, secure the cables by running the cables along the strain-relief bracket and tying them to the bracket using cable ties.
2. The module is now ready to be configured through Local Management. Refer to the *Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide* for information on how to access and use Local Management.

Troubleshooting

This chapter provides information concerning the following:

- Using LANVIEW ([Section 4.1](#))
- Troubleshooting Checklist ([Section 4.2](#))
- Using the RESET Button ([Section 4.3](#))

4.1 USING LANVIEW

The modules use Enterasys Networks' built-in visual diagnostic and status monitoring system called LANVIEW. The LANVIEW LEDs ([Figure 4-1](#)) allow quick observation of the network status to aid in diagnosing network problems.

Figure 4-1 LANVIEW LEDs

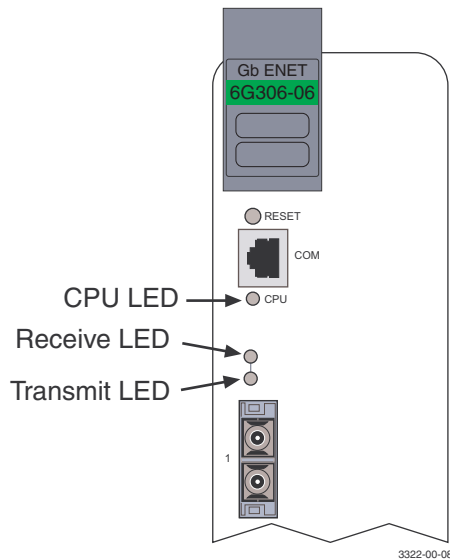


Table 4-1 describes the LED indications and provides recommended actions as appropriate.



NOTE: The terms **flashing**, **blinking**, and **solid** used in Table 4-1 indicate the following:

Flashing indicates an LED is flashing randomly.

Blinking indicates an LED is flashing at a steady rate (approximately 50% on, 50% off).

Solid indicates a steady LED light. No pulsing.

Table 4-1 LANVIEW LEDs

LED	Color	State	Recommended Action
CPU	Off	Power off.	Ensure chassis has adequate power.
	Red	Blinking. Hardware failure has occurred.	Contact Enterasys Networks for technical support.
		Solid. Resetting, normal power up reset.	If the LED remains red for several minutes, contact Enterasys Networks for technical support.
	Amber	Blinking. Crippled.	Contact Enterasys Networks for technical support.
		Solid. Testing.	If the LED remains amber for more than several minutes, contact Enterasys Networks for technical support.
	Green	Solid. Functional.	None.
	Amber and Green	Booting. Blinks amber and green while booting.	None.

Table 4-1 LANVIEW LEDs (Continued)

LED	Color	State	Recommended Action
RX (Receive)	Off	No link. No activity or port in standby. Port enabled or disabled.	None.
	Green	Solid. Link, port enabled, no activity.	None.
		Blinking. Link, port disabled.	None.
	Amber	Flashing. Link, port enabled, activity.	None.
	Red	Solid. Diagnostic failure.	Contact Enterasys Networks for assistance.
TX (Transmit)	Off	No activity.	Ensure that the Spanning Tree Algorithm (STA) is enabled and that there is a valid link.
	Green	Flashing. Indicates activity. Rate indicates data rate. Port enabled.	None.
	Amber	Blinking. Port in standby.	Ensure that the port is not disabled.
	Red	Flashing. Indicates collision rate.	None.
		Solid. Diagnostic failure.	Contact Enterasys Networks for technical support.

4.2 TROUBLESHOOTING CHECKLIST

If the module is not working properly, refer to [Table 4-2](#) for a checklist of problems, possible causes, and recommended actions to resolve the problem.

Table 4-2 Troubleshooting Checklist

Problem	Possible Cause	Recommended Action
All LEDs are OFF.	Loss of power.	Ensure that the module was installed properly according to the installation instructions in Chapter 3 , and that the host chassis is powered properly.
No Local Management Password screen.	Autobaud is enabled, but the baud rate has not yet been detected.	Press ENTER (RETURN) (may take up to four times).
	Incorrect terminal setup.	Refer to the <i>Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide</i> for proper setup procedures.
	Improper console cable pinouts.	Refer to Appendix A for proper COM port pinouts.
	Corrupt firmware image, or hardware fault.	If possible, attempt to download the image to the module again. Refer to Section B.2 for instructions to clear NVRAM.
Cannot navigate beyond Password screen.	Improper Community Names Table.	1. Refer to the <i>Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide</i> for the Community Names Table setup. 2. If the Community Names have been forgotten, refer to Section B.2 for instructions on how to set the mode switch to reset the Community Names to their default values.

Table 4-2 Troubleshooting Checklist (Continued)

Problem	Possible Cause	Recommended Action
Cannot contact the module through in-band management.	IP address not assigned.	Refer to the <i>Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide</i> for the IP address assignment procedure.
	Port is disabled.	Enable port. Refer to the <i>Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide</i> for instructions to enable/disable ports.
	No link to device.	1. Verify that all network connections between the network management station and the module are valid and operating. 2. If the problem continues, contact Enterasys Networks for technical support.

Table 4-2 Troubleshooting Checklist (Continued)

Problem	Possible Cause	Recommended Action
Port(s) goes into standby for no apparent reason.	Loop condition detected.	1. Verify that Spanning Tree is enabled. Refer to <i>Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide</i> for the instructions to set the type of Spanning Tree Algorithm (STA). 2. Review the network design and delete unnecessary loops. 3. If the problem continues, contact Enterasys Networks for technical support.
User parameters (IP address, Device and Module name, etc.) were lost when the module power was cycled or the front panel RESET button was pressed.	1. Position of Mode switch (7), NVRAM Reset, was changed sometime before either cycling power or pressing the RESET button, causing the user-entered parameters to reset to factory default settings. 2. Clear NVRAM was set through Local Management.	1. Reenter the lost parameters as necessary. Refer to the <i>Matrix E7 Series and SmartSwitch 6000 Series Modules Local Management User's Guide</i> for the instructions to configure the device through Local Management. 2. If the problem continues, contact Enterasys Networks for technical support.

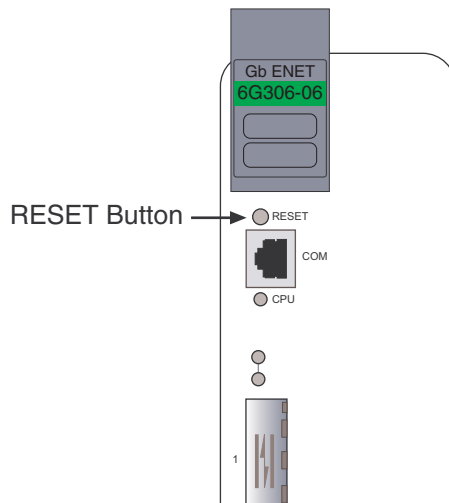
4.3 USING THE RESET BUTTON

The RESET button shown in [Figure 4-2](#) resets and re-initializes the module.



CAUTION: Pressing the RESET button resets the device, and all current switching being performed by the module is halted. A module downtime of up to two minutes will result from this action for any devices connected to the module.

Figure 4-2 RESET Button



To reset the module processor, press and release the RESET button. The module goes through a reset process for approximately 60 seconds. Additional downtime may result as the module reenters the network.



NOTE: Pressing the RESET button while the module is already in reset mode is not recommended. If the RESET button is pressed while the module is in reset mode, the module will enter an extended diagnostic procedure, which is unnecessary for normal operation. This extended diagnostic procedure takes longer than one minute to complete.

Specifications

This appendix provides operating specifications for the 6G302-06 and 6G306-06 modules. Enterasys Networks reserves the right to change the specifications at any time without notice.

A.1 MODULE SPECIFICATIONS

Table A-1 provides the I/O ports, processors and memory, physical, and environmental module specifications for the 6G302-06 and 6G306-06.

Table A-1 Specifications

Item	Specification
I/O Ports	
6G302-06	
Ports 1 through 6	Gigabit Ethernet 1000 Mbps (1000BASE-T compliant) with RJ45 connectors
6G306-06	
Ports 1 through 6	Supports optional Gigabit Ethernet Port Interface Modules (GPIMs) with SC connectors. Depending on the GPIM installed, the ports can support either 1000BASE-SX or 1000BASE-LX.
Processors/Memory	
Processor	Intel i960 HT RISC processor
Dynamic Random Access Memory (DRAM)	20 MB
FLASH Memory	8 MB expandable to 16 MB
Shared Memory	4 MB

Table A-1 Specifications (Continued)

Item	Specification
Physical	
Dimensions	46.43 H x 6.05 W x 29.51 D (cm) 18.28 H x 2.38 W x 11.62 D (in.)
Approximate Weight (Unit)	2.04 kg (4.5 lb)
MTBF (Predicted)	179,544 hours
Environmental	
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-30°C to 73°C (-22°F to 164°F)
Operating Relative Humidity	5% to 90% (non-condensing)

A.2 COM PORT PINOUT ASSIGNMENTS

The COM port is a serial communications port that supports Local Management or connection to an Uninterruptible Power Supply (UPS).

Table A-2 shows the COM port pin assignments.

Table A-2 COM Port Pin Assignments

Pin	Signal Name	Input/Output
1	Transmit Data (XMT)	Output
2	Data Carrier Detect (DCD)	Output
3	Data Set Ready (DSR)	Input
4	Receive Data (RCV)	Input
5	Signal Ground (GND)	NA
6	Data Terminal Ready (DTR)	Output
7	Request to Send (RTS)	Input
8	Clear to Send (CTS)	NA

A.3 REGULATORY COMPLIANCE

The modules meet the following safety and electromagnetic compatibility (EMC) requirements:

Safety:	UL 1950, CSA C22.2 No. 950, 73/23/EEC, EN 60950, IEC 950, and EN 60825
Electromagnetic Compatibility (EMC):	FCC Part 15, CSA C108.8, 89/336/EEC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS 3548, and VCCI V-3

Mode Switch Bank Settings and Options

This appendix covers the following items:

- Required tools ([Section B.1](#))
- Locations, functions, and settings for the mode switches ([Section B.2](#))
- Upgrading the FLASH ([Figure B.3](#))

B.1 REQUIRED TOOLS

Use the following tools to perform the procedures provided in this appendix:

- Antistatic wrist strap
- Phillips screwdriver



CAUTION: An antistatic wrist strap is required (provided with the module) to perform the procedures in this appendix. Use the antistatic wrist strap when performing any of the procedures in this appendix to minimize ESD damage to the devices involved.

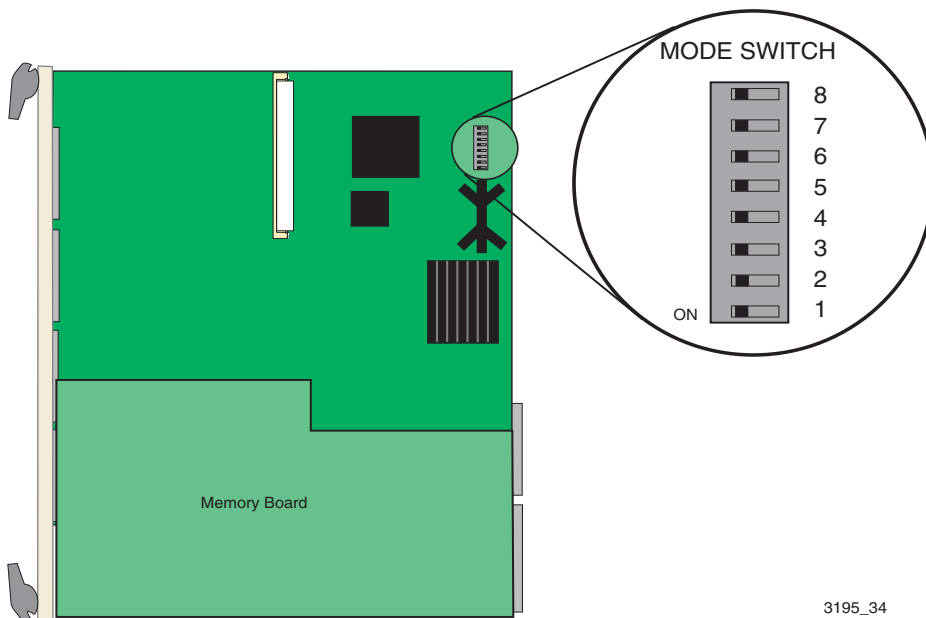
B.2 SETTING THE MODE SWITCHES

Figure B-1 shows the location of the mode switches and the switch settings for normal operation. These switches are set at the factory and rarely need to be changed.

Switch definitions and positions are as follows:

- Switches 1 through 4 – For Enterasys Networks use only.
- Switch 5 – COM Port Autobaud. The default (OFF) position enables Autobaud sensing on the COM port for Local Management sessions. Changing the switch to the ON position disables Autobaud sensing and sets the COM port to 9600 baud for Local Management sessions.

Figure B-1 Mode Switch Location



3195_34

- Switch 6 – Forced BootP.



NOTE: After changing the position of switch 6, DO NOT reapply power to the module until there is a station on the network acting as a BootP server, which contains the downloadable firmware image file.

DO NOT attempt a Forced BootP unless a BootP server has been configured for the module. The BootP server references the location of a station acting as a Trivial File Transfer Protocol (TFTP) server containing the module image file.

When the position of Switch 6 is changed and the power is cycled to the module, the device requests the image file location from the BootP server and uses TFTP to download the image from the TFTP server. If one of these requirements is not met, the module continues to request either the BootP server or the TFTP server until the RESET button on the module is pressed. Once the RESET button is pressed, the module resets after one minute and loads the image stored in FLASH memory.

- Switch 7 – Clear NVRAM. Changing the position of this switch resets NVRAM on the next power-up of the device. All user-entered parameters, such as the IP address, device names, etc., are reset to the factory default settings. Once the module resets, you can either use the factory default settings or reenter your own parameters.
- Switch 8 – Reset Password/Community Names. Changing the position of this switch clears user-entered passwords stored in NVRAM, and restores the factory default passwords on the next power-up of the device. Once the module resets, you can either use the factory default settings or reenter your own passwords.



NOTE: Do not change the position of switch 8 unless it is necessary to reset the super-user configured passwords to their factory default settings.

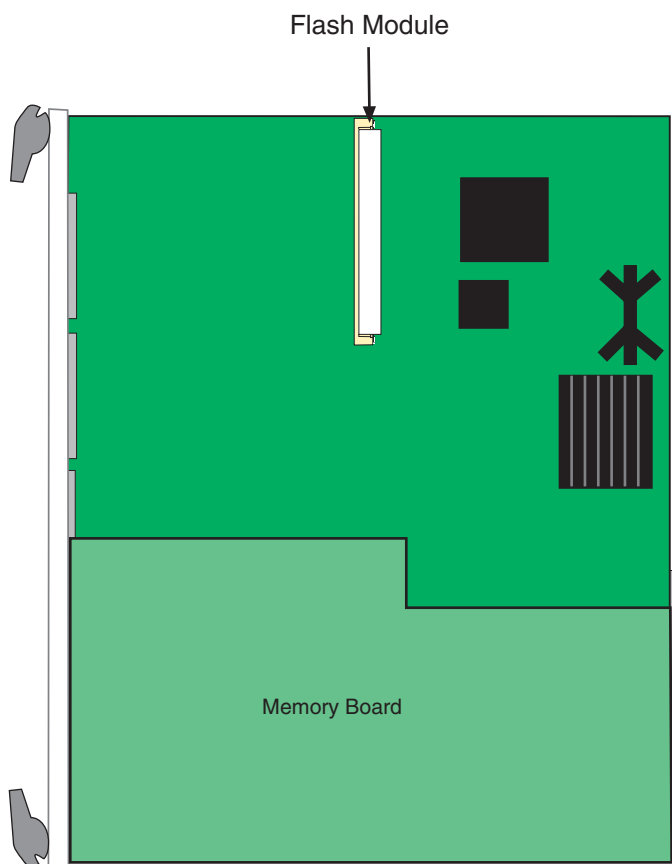
B.3 FLASH UPGRADE

FLASH upgrade expansion SIMMs are available for the module. The FLASH memory can be expanded from 8 MB to 16 MB. This section explains how to locate and add/replace the FLASH module. For details on getting help, refer to [“Getting Help”](#), in About This Guide.

B.3.1 Locating the FLASH Module

Figure B-2 shows the location of the FLASH module.

Figure B-2 FLASH Module Location



B.3.2 Installing the FLASH Module

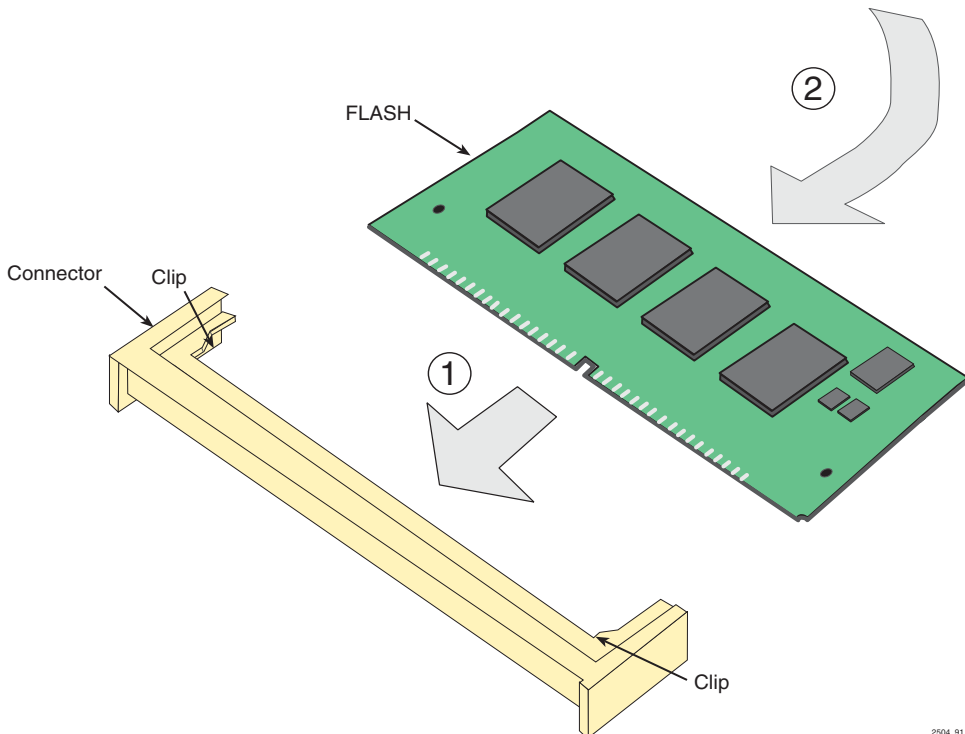


CAUTION: Observe all antistatic precautions when handling sensitive electronic equipment.

To install a FLASH module, refer to [Figure B-3](#) and proceed as follows:

1. With the FLASH module oriented as shown in [Figure B-3](#), insert the FLASH module down between the connector.
2. Pivot the FLASH module downward so the connector clips align with the two side notches of the FLASH module and the connector clips lock the FLASH module into place.

Figure B-3 Installing the FLASH



2504_01

GPIM Specifications

This appendix lists the specifications and regulatory requirements for the GPIMs and the media they use. Enterasys Networks reserves the right to change these specifications at any time without notice. The available GPIM options are the GPIM-01, GPIM-08, and GPIM-09. All three devices use SC connectors. The GPIM-01 supports multimode (MMF) fiber cable, the GPIM-08 supports single mode (SMF) fiber cable, and the GPIM-09 supports both multimode and single mode fiber cable, as specified in the following tables.

C.1 GIGABIT ETHERNET SPECIFICATIONS

The following specifications for the Gigabit Ethernet GPIMs meet or exceed the IEEE 802.3z specification.

C.1.1 GPIM-01 Specifications (1000BASE-SX)

Table C-1 GPIM-01 Optical Specifications

	62.5 μ m MMF	50 μ m MMF
Transmit Power (minimum)	-9.5 dBm	-9.5 dBm
Receive Sensitivity	-17 dBm	-17 dBm
Link Power Budget	7.5 dBm	7.5 dBm

Table C-2 GPIM-01 Operating Range

	Modal Bandwidth @ 850 nm	Range
62.5 µm MMF	160 MHz/km	2-220 Meters
62.5 µm MMF	200 MHz/km	2-275 Meters
50 µm MMF	400 MHz/km	2-500 Meters
50 µm MMF	500 MHz/km	2-550 Meters

C.1.2 GPIM-08 Specifications

Table C-3 GPIM-08 Optical Specifications

	10 µm SMF
Transmit Power (minimum)	0 dBm
Receive Sensitivity	-22 dBm
Link Power Budget	22 dB

Table C-4 GPIM-08 Operating Range

	Range
10 µm SMF (1550 nm Wavelength)	70 km

C.1.3 GPIM-09 Specifications (1000BASE-LX)

Table C-5 GPIM-09 Optical Specifications

	62.5 μ m MMF	50 μ m MMF	10 μ m MMF
Transmit Power (minimum)	-11.5 dBm	-11.5 dBm	-9.5 dBm
Receive Sensitivity	-20 dBm	-20 dBm	-20 dBm
Link Power Budget	8.5 dBm	8.5 dBm	10.5 dBm

Table C-6 GPIM-09 Operating Range

	Modal Bandwidth @ 1300 nm	Range
62.5 μ m MMF	500 MHz/km	2-550 ^A Meters
50 μ m MMF	400 MHz/km	2-550 ^A Meters
50 μ m MMF	500 MHz/km	2-550 ^A Meters
10 μ m SMF	N/A	2-10000 Meters

A. In order to obtain the distance of 550 m for the GPIM-09 using multimode fiber, Launch Mode Conditioning cable must be used. Refer to [Section 3.6.2](#) for details.

C.2 PHYSICAL AND ENVIRONMENTAL SPECIFICATIONS

Physical:

Dimensions	1.2 H x 3.4 W x 6.5 D (cm) 0.47 H x 1.34 W x 2.56 D (in.)
Weight	25 g (0.88 oz)

Environmental:

Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-30°C to 90°C (-22°F to 194°F)
Operating Humidity	5% to 90% (non-condensing)

C.3 REGULATORY COMPLIANCE

The GPIMs meet the following safety and electromagnetic compatibility (EMC) requirements:

- 21 CFR 1040.10, 1040.11, and CDRH (U.S. Department of Health and Human Services) (FDA).
- IEC Publication 825 (International Electrotechnical Commission).
- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

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